

الكتاب

LAKE TONGUEWATER TO ATLANTIC OCEAN.



LAKE TONGUEWATER TO LAKE OKEECHOBEE



LOWER CALOOSAHATCHIE RIVER TO ATLANTIC OCEAN.



LAKE OKEECHOBEE TO LAKE HICKEY



LAKE OKEECHOBEE TO LAKE HICKEY



LAKE OKEECHOBEE TO LAKE HICKEY



OKEECHOBEE DRAINAGE CO.

JAMES M. WILKINSON,

CHIEF ENGINEER.

See also map of improvements.

See also map of improvements.

See also map of improvements.

See also map of improvements.

See also map of improvements.

See also map of improvements.

See also map of improvements.

See also map of improvements.

See also map of improvements.

See also map of improvements.

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A diagram of a river with a bridge and a small boat. The river is represented by a horizontal line with wavy ends. A bridge with two arches crosses the river. A small boat is on the river to the right of the bridge. There are some small figures or structures on the banks.



OKEECHOBEE DRAINAGE CO.

JAMES M. KREMER,
CHIEF ENGINEER.

*Sections on line of Improvement,
To accompany Report for 1886.*

FOOTER



THE ATLANTIC
AND
GULF COAST CANAL
AND
OKEECHOBEE LAND
COMPANY.

CHARTERED BY SPECIAL ACT OF THE LEGISLA-
TURE OF FLORIDA, 1881.

CAPITAL, \$10,000,000.

One Million Shares.

Par Value, \$10.00.

INCORPORATED
Under the Laws of the State of Florida, 1881.



FEBRUARY, 1899.

OFFICERS.

<i>President,</i>	CHARLES H. GROSS.
<i>Vice-President,</i>	WM. H. WRIGHT.
<i>Treasurer,</i>	HAMILTON DUSTON.
<i>Secretary,</i>	RICHARD SELLINGER.
<i>Chief Engineer,</i>	JAMES M. KEEANER.

DIRECTORS.

CHARLES H. GROSS,	PHILADELPHIA.
HAMILTON DUSTON,	PHILADELPHIA.
WM. H. WRIGHT,	PHILADELPHIA.
T. HENRY ASHURY,	PHILADELPHIA.
LEWIS W. ELAKE,	PHILADELPHIA.
JAMES L. HILL,	PHILADELPHIA.
ARCH. C. HAYNES,	PHILADELPHIA.
JAMES M. KEEANER,	PHILADELPHIA.
ROBERT W. GIBSON,	PHILADELPHIA.
SAMUEL H. GREY,	CAROLINE, N. J.
F. A. HENRY,	First Street, Camden.



LANDS FOR SALE.

The lands acquired by this Company are offered for sale at graded prices, from \$5.00 per acre upwards, according to the location and quality.

The lands of this Company are within the counties of Orange, French, Polk, Manatee and Monroe.

The greater part of them are in the region adjacent to the Caloosahatchee and Kissimmee Rivers. They are accessible and specially well adapted to settlement, and the culture of all tropical fruits and crops; also, of early vegetables for northern markets.

Along the coast and rivers in Monroe and Manatee counties are many tracts specially suited to coconut and pineapple culture.

There are, also, in the Caloosahatchee and Kissimmee country, many tracts specially suited for stock pasturage.

For sugar planting, either on large or small scale, this Company owns thousands of acres that are unsurpassed. At present, these are for sale at the low price of \$20 per acre.

Lands of similar quality in Louisiana are held at from \$200 to \$250 per acre.

Applications for land should be addressed, and remittances made to

W. T. FORBES,

Land Commissioner, Jacksonville, Fla.



PROSPECTUS.

This Company was chartered by special act of the Legislature of Florida, March 30, 1835, and has a reputation from the Board of Internal Improvement of the State of Florida, by the publication of all lands lying north of Treasury 22 and east of Brown Creek, in the southern portion of the State, that were remaining unsold, of eight million of acres.

The Board of Finance of the Internal Improvement Fund (representing the State lands sold, by agreement, to "grow, graze, pasture and feed the extensive sections of land like land sold and very water belonging to the State, now proposed, so that our land will be required within the limits of this work, which may be returned, and then sold to be cultivated, with lands to be returned in such quantities and at such times as may be required by the work."

This new and most every part of Florida Land is based on the character of its production, otherwise and value of the soil, including the "high and low lands," "low, middle and high lands," and "young lands."

The soil of the first and most rich part of the land is composed of alluvial, fertile and rich, and is well adapted to the cultivation of sugar, tobacco, rice, cotton, and hemp, and all other crops and tropical plants. The second, third, and fourth, including the Kalamazoo River, the Kalamazoo River, Lake Kalamazoo and the present extensive marshes, and the soil is very fertile, and is well adapted to the cultivation of sugar cane, which may be considered as a source of the wealth of the soil, as it is grown without manure, although one of the most valuable crops known. The third and fourth parts of the land are used as low lands to grow rice, and are well adapted to the cultivation of rice, but the soil is very fertile, and is well adapted to the cultivation of rice, but the soil is very fertile, and is well adapted to the cultivation of rice.

Lake Kalamazoo, which runs the course of the Kalamazoo river, is a source of very rich soil, and is well adapted to the cultivation of sugar, tobacco, rice, cotton, and hemp, and all other crops and tropical plants. The second, third, and fourth, including the Kalamazoo River, the Kalamazoo River, Lake Kalamazoo and the present extensive marshes, and the soil is very fertile, and is well adapted to the cultivation of sugar cane, which may be considered as a source of the wealth of the soil, as it is grown without manure, although one of the most valuable crops known. The third and fourth parts of the land are used as low lands to grow rice, and are well adapted to the cultivation of rice, but the soil is very fertile, and is well adapted to the cultivation of rice.

This Company proposed to purchase some private lands, by the opening of roads from Lake Kalamazoo to the St. Louis and California Rivers, that will not only permanently lower the level of the lake, but will also give a safe outlet to the St. Louis and Ohio, but the water of the lake and adjacent streams, and which will also afford a source of navigation for the products of the Kalamazoo valley and surrounding regions.

REPORT OF ENGINEER AND SUPERINTENDENT.

JACKSONVILLE, FLORIDA, February, 1884.

*To the President and Directors of the Atlantic and Gulf Coast Canal and
Ochsleben Land Company.*

GENTLEMEN:—The following report, covering the operations of your
Company for the year 1883, is respectfully submitted:—

FILLING WORK AND RECONSTRUCTION.

An opportunity offered, during the year 1883, investigations were made
with a view of preparing plans for the further drainage of Lake Ochs-
leben and the bordering lands to the westward.

These observations continued over the spring, summer and fall months,
and a prolonged trip was made during the spring season, in order to gain
the conditions at that period. It having been reported that from Lake
Hatchepiece—located five miles west of Lake Ochsleben—a natural outlet
existed in waters with the southern glacial; and desiring to take
advantage of a condition so favorable, a party was organized, and careful
examinations of the shore lines of the lake and country adjacent was made.
The result of this expedition established the fact that no natural exit for
the waters of this lake existed anywhere near, and that a permanent lower-
ing of the water could only be attained by the construction of efficient canals.

The soil bordering the lake is composed entirely of loess, mingled
with a small percentage of sand and disintegrated marine deposits, under-
lain by a stratum of shell sand—the whole resting upon a coralline or lime-
stone formation. The soil is of the most fertile character,
the lake margin being covered by a dense vegetation, dotted by numerous
homesteads of willow, cotton apple, etc., and great areas of towering glory
vines, these latter have sprung up since the completion of the drainage
canal connecting Lake Flot, at the head of the Ochsleben River,
with Lake Ochsleben. The presence of this species of vegetation is con-
clusive evidence as to the efficiency of your operations in that portion of
the drainage system, and indicates that plant life is rapidly changing from
the aquatic to the dry land variety. To the westward of Hatchepiece, the
prime timber borders these rich lands, at several points being distant but

once or twice only. From the lake, approaches may be made by canal or roadway roads, one which the leader for construction, etc., could be constructed to points on this lake or Okuchobee, and westward. Lake Hetchobee is located in townships 48 and 49 north, and range 32 east, and is about six miles in its greatest diameter. Westward from this lake is a possible location for a drainage canal, having a course slightly east of north, and running in the direction of "Hewley's Landing," a point about two miles east of the western border of township 48 north, of range 32 east.

This canal would be on a general line which isolates the Everglades proper, from the main land on the west, and located in a natural depression into which the rain and waters of surplus flow in each way to the Gulf.

This canal would also fill the requirements of a main line for the drainage of Lake Okuchobee, by constructing a branch extending south from, and tapping the lake in range 34 or 35 east. The waters of drainage would then be largely directed from the Caloosahatchee Valley and carried to the Gulf—via the improvement designated—filling the natural depression of the Everglades on the west, and thence into Hatter's River.

This canal, constructed of adequate dimensions, could be made an avenue for the drainage of a large portion of the Northern Everglades. Lateral canals at intervals, tapping the rich bottom lands to the east and west, would have the effect of permanently reducing the water level of this region, and reclaiming a territory inestimable in the farming of rice, and capable of producing crops peculiar to this latitude, and which cannot be grown in any other section of the United States.

The construction of these canals should begin on the borders of the lakes, and be projected westward. Supplies, etc., would reach the dredge boats and levees, employed, via either the Kromeau or Caloosahatchee Rivers, single water communication having already been provided, by which water of the above sources could be used as a base of supplies. In order to determine a close approximation of the cost of such an estimated line of operations, it will be necessary to conduct the required field work, surveys, etc., to secure positive data as to the location, nature, position, and character of material to be excavated, etc. I say, however, that the natural conditions of soil, surface growth, and general topography, are most favorable to the construction of canals necessary to the accomplishment of object in view.

A reconnaissance of the south shore of Lake Okuchobee, extending through the center of the Everglades to the head waters of Hatter's River, and thence to the Gulf of Mexico, was made during the winter of 1884.

The extreme south end of Lake Okanabeen was ascertained and found to be latitude $44^{\circ} 40' 36''$, north. In this locality, eight bays were examined; they extend in a westerly direction, from the general shore line of the lake, from one to two miles, through low ground, to the sea-green, where they cease. These bays are from one hundred to three hundred feet wide, and from eight to ten feet deep, with soft mud bottoms. In many places, the banks of these bays are elevated from one to two feet above the lake surface; the soil is of a rich, dark color, and of fine quality. The marginal lands support a growth of willow, cranial apple, etc. In prospecting the examination, south from this point, frequent soundings were made with a ten foot rod. No rock was found until a point thirty miles south of the lake had been reached, when, at a depth of eight and one-half feet, solid Katchicow was struck. At thirty-five miles, rock was found seven and one-half feet below surface. At about forty-five miles, rock was found at four feet. At this point, the northern limit of the lower Everglades was reached. The name of General Clark, from Miami to "Waxy Hades" leading, as laid down on the Jeff. Davis map of the State of Florida, may be considered the dividing line between the upper and lower Everglades. The upper or northern glades, being composed of a solid body of dense saw-grass, extending thirty miles east and west, and fifty miles north and south, and which has hitherto been considered impenetrable. As before noted, the surface of this soil is at times exposed, and it is only during, or subsequent to a heavy rainy season, that it is possible to grow them with a light draft, and even, advantage may be taken of the natural drains of this wet area. If there was an absence of the dense saw-grass, no difficulty would be experienced in traversing this country in any direction. A few feet reduction in the surface of the water of this region would be sufficient for purposes of cultivation, etc.

The surface of the country is generally intersected by ponds or sloughs, and, due to marginal causes, is becoming more and more elevated, and the side of one vast expanse of rich soil which nature has been creating up for ages. There is a marked difference in the characteristics of the lower Everglades. It is made up of numerous soft islands, with saw-grass borders, separated by sloughs, which serve as good avenues for traversing the country. Another mark, the lower Everglades is a wet grass region, cut up by numerous natural water courses, having a course generally southerly, and formed by thousands of islands. The surface of the lower glades is well elevated above tide level, but, due to the rise of overhanging low rock extending along the Gulf and Atlantic borders, the water sits, in a great measure, suspended and retained at a varying elevation above the tide. Land and

measurements taken at Lake Worth, established the surface of the fresh water of the Everglades to be ten and one-half feet above the tide waters of the Atlantic, and that a canal seven hundred feet long, would afford relief for a vast area watered. Examinations at Miami and other points, disclosed the presence of this rocky rim, whose crest was elevated above the normal level of the waters of the interior. It would be perfectly feasible to cut this rim at frequent intervals, and permit the impounded water to flow out into the Gulf or Atlantic. This would result in exposing great tracts of soil, now practically valueless. From these points, drainage canals could be projected into the interior.

These recent observations as to the topography and natural resources of the Everglades Region, and feasibility of reclaiming the same, are merely following in the line of research, respecting this interesting territory, begun many years ago. The earliest extracts taken from a letter written by General Thomas S. Jesup, to the Hon. J. D. Weycott, United States Senator, dated February 17th, 1848, show that intelligent observations had been made by the United States Officers engaged in the Seminole war. He says:—

"From my own observations, when commencing the survey, spreading is
 "that country ten years ago, as well as those reports made by, and infor-
 "mation derived from, intelligent officers, who operated there, and who
 "explored the Everglades and the large lake, Okechobee, north of them,
 "I have no doubt the glades are about fifty feet above the level of the
 "sea. * * * * The practicability of draining both, I take for
 "granted. * * * * The effect of the measure would be, to reclaim
 "many hundred thousands of acres, without including the head of the
 "Everglades, now subject to inundation for several months every year,
 " * * * * With the surface of the lake and the glades lowered,
 "these low lands would be permanent, and would soon be converted into
 "as valuable sugar plantations as any in the world. The timbers of
 "this country are exceedingly rich. These reclaimed lands would be con-
 "verted into rice, cane, and orange plantations, and would be cultivated
 "by a numerous white population. * * * * "

Darlington took, in a report to the United States Senate, dated June 27, 1849, on the feasibility of draining the Everglades, much use of valuable information conveyed in a letter written by General Wm. S. Harvey, of the United States Army, dated January 13th, 1848. Not following extracts:—

"During the late Seminole war, I was repeatedly in the Everglades,
 "and on the rim or margin at different points, and crossed it from Miami
 "to Black Key, * * * * Of the practicability of draining them,

"I have no question. That such work would obtain millions of acres of highly valuable land, I have no doubt. My plan for doing the work would be, to dig a large and deep canal from Lake Okechobee into the Caloosahatchee River, on the west side, and a like canal from the lake to the Lochachatchee River on its east side, and similar canals from the glades into the head of the Suwannee, Little River, North Creek, Miami, Shark River, and other outlets on both sides of the Peninsula. I am satisfied these canals and drains once opened, the glades will become dry. No person can say, with positive certainty, what the soil of the Everglades, when drained, would or would not produce; but it is my opinion, it would be the best sugar land in the world, and also excellent for rice and corn. It would, in that behalf, be much valuable for raising tropical fruits; and it is the only region of the peninsular United States in which they can be raised. * * * I do not know of a project that I regard as more calculated to benefit the country than this. * * * It affords the Union just the kind of cultivable land that is wanted to render us, to a great extent, independent of the West Indies."

The work performed by your Company has already improved vast tracts of lands identical with those just referred to, and also a large territory whose soil differs somewhat from the rich deposits of human period to the Everglades region. I refer to what is known as the peat and pine lands of the Southern Peninsula. There the rich soil, so essential to the maturity of plants in the Northern and Eastern States, is not an indispensable condition with vegetable life. An examination of this soil shows it to be composed largely of disintegrated carbonaceous of lime and phosphate shell life of animals of distant sea waters, and the fossilized remains of the peat life of some tropical waters. It has been estimated that each cubic foot of this debris of decomposed vegetable life, shell fish, etc., represents about one thousand times that quantity of original matter. Here, indeed, we have in the soil a natural fertilizer of no mean quality, upon which a permanent vegetation flourishes without extraordinary effort, and where upon up cultivation may be conducted throughout the entire year. This peculiar characteristics of the soil is not confined to the recent formation of the Gulf and Atlantic Coasts, but it is a distinguishing feature of the lands of the interior, where, at elevations of twenty feet and upwards above the surface of tidal waters, shell and other marine deposits constitute a large percentage of the soil, and are even present to neutralize the acids of decomposing vegetable life, thus rendering an immediate and profitable cultivation of either the heavy bottom lands or the elevated marsh adjacent.

It will be desirable to still further improve the channel of the upper Caloosahatchee River, in the vicinity of Fort Thompson. An outcropping ridge of soft loam rock exists at this point, causing a natural constriction in

the river channel. The work already performed by the Company has had the effect of preventing the periodical overflow of the lands adjacent. The river at the head of this construction receives the waters from Lake Okanogan, Hachyatan, and the general water shed intervening. It also receives a large percentage of the drainage of the great Calawachichie Slough, extending from the north, and which, at times, flows in more water than the stream just noted. By diverting the waters of the Calawachichie into the Okanogan, at a point several miles west of Fort Thompson, this condition could be readily modified, and accomplished at a moderate cost.

KOOTENAI VALLEY.

Regarding the Kootenai River, and the lake region encompassed by and at the head of the same, several reports have already been presented. During the past season, however, additional data has been secured, which will materially aid in determining the best lines to be pursued in the further improvement of the river channel for navigation and drainage. Work is now progressing on this river south of Lake Kootenai, consisting in cutting off bends and straightening the channel, and already the distance to Lake Okanogan is materially lessened over the old line of river travel. It will be perfectly feasible, by additional work in this locality, to lower Lake Kootenai several feet. This will create a great motive for the accumulation of more waters, and realize much land at present uncultivated.

Recent examinations have north of Lake Kootenai developed a continuous marsh, extending to Lake Cypress. It is partly on the east range line of township 21 north, range 35 west, and affords a practical line for constructing a drainage canal, about five and one-half miles long, for the better relief and lowering of the waters of Lake Cypress. It is proposed, however, before this is done, to connect Lake Cypress with Lake Kootenai, by a canal about two miles long—a work which will possibly be in hand at the time of presenting this report. This canal will be thirty six feet wide and six feet deep, and completed before next rainy season.

The dividing line between townships 22 and 23 north is the northern boundary of the drainage district. About nine miles north is Lake Cowe, the summer level of this marshy, and from which the water flows away in several directions. This basin has an area of about sixteen square miles, and is elevated one hundred and six feet above tide-water. On its east bank, several sloughs descend southwest by Peggy Creek, and by seepage a percentage of its waters flow into East Tokeopolatiga Lake.

The porosity of the soil permits the waters of surrounding bays, etc., to percolate into these lakes, which, normally, are land-locked reservoirs, and thus maintain a constant surface level. East Tohopekaliga is thirty-five feet lower than Conway, and its surplus waters naturally find an outlet through the rich marshes of "Cross Prairies," connecting it with Lake Tohopekaliga; the latter situated about four miles to the south-east, and normally six feet lower than East Tohopekaliga. The drainage from Lakes Isabel, Alligator and Gentry, and Canoe Creek, is into Lake Cypress, with a fall of twelve feet from surface of Lake Alligator to Cypress.

General Gillmore, in his report of June, 1882, to the Senate Committee, on feasibility of constructing an inland canal across the peninsula of Florida, from St. John's River to Charlotte Harbor, and whose observations were largely made within the limits of the drainage district, in speaking of the nature of the soil, remarks:—

"The subsoil is a well stocked receptacle and storage magazine, from which, by innumerable veins and rivulets, the lakes and ponds are fed. * * * An open and comparatively deep cut would soon cause a very active flow of these subterranean waters to its bed, which would probably be abundantly supplied with water from this source for a certain length of time. But gradually the level of these subterranean waters will be lowered by the unceasing drain, the stock of stored up waters will become exhausted, and, while the swamps may be reclaimed by the operation, their usefulness, as direct or indirect feeding reservoirs to the canal will be destroyed, or very materially impaired."

This opinion, of one of the ablest engineers in the United States, is confirmed by the operations of the drainage canals on the Caloosahatchie and Kissimmee rivers.

CONSTRUCTION.

Dredge No. 3.

On August 1st, of 1884, Dredge No. 3 was completed, and a trial of her capacity made. A detailed statement of size of hull, machinery and operations of this boat, has already been presented.

The material in excavation on the several lines of our operations, varies in its nature, consisting of all grades, from pure muck or humus, to sand, marl and soft lime-strata, and an admixture of two or more of these materials. Dredges which will economically and rapidly remove muck, do not operate so satisfactorily in tenacious deposits, and with less efficiency in the other classes of excavation.

In order to correct these difficulties, it was determined to construct a dredge to operate on a different principle from those already in possession of the Company. The principle decided upon was that of a suction dredge provided with an apparatus to cut or break up the material to be removed, and draw it at the mouth of the suction pipe. This dredge is capable of excavating a canal sixty six feet wide and twelve feet deep. It is supplied with a fifteen inch catamaran pump, operated by a Westinghouse engine of 141 horse power, which, with the gearing and connections, are placed upon a two table located on the forward part of the boat. A fifteen inch pipe connecting with the pump, projects over the bow of the boat, and when in position for cutting, is set at an angle dependent upon the depth of excavation. This pipe, by means of machinery operating the two-table, is given a lateral motion; in cutting and discharging the cut of a canal, the end of which measures sixty six feet. At the end of the pipe is a vertical cutting or excavating apparatus, consisting of a series of arms about with cutting edges, connected to a vertical shaft, capable at one revolution of making a cut about eight feet deep, and its power of penetration more than of back only limited by nature of material. The driving power is supplied by the main engine. In sand, or in a mixture of sand and rock, this apparatus gives complete satisfaction; we find, however, in the deep excavation, that a stratum composed of thin layers of material resembling sandstone exists. In this, the operation of the cutting apparatus was not satisfactory. In order to correct this difficulty, a new form of cutter is now being supplied, which it is believed will fill the requirements. The excavated material is elevated through the suction pipe, and catamaran pump, and forced through a pipe extending laterally from the side of the boat, and deposited beyond the margin of the excavation. This boat completes her canal as she proceeds.

When working under this system, have been in successful operation in other sections of the Canal. Dredge No. 3 was built at Kinsman City, under the supervision of Captain Ross, Assistant Superintendent, who is credited with the general plan of combining the excavating apparatus with the operation of the catamaran pump.

Dredge No. 4

This boat was constructed in 1883, and simply fitted with end and tail tackle for towing logs, etc. While in this condition, she did a large amount of work in Tiger Creek, between Lakes Kinsman and Walk-in-the-Water, in removing snags, cutting off points, etc. She was also engaged on Cow Path between Lake Ojibwa and Hatchetba. It was determined to im-

prove her efficiency by the introduction of steam hoisting machinery, which could also be made to do service by cutter attachments, in widening and deepening river channels and cutting off lands, etc.

On April 24th, 1884, she arrived at Kamsonnet for the purpose of installing the machinery. While there, she was remodelled, a second story was added, and more comfortable quarters for crew provided.

On May 27th, she was completed and started north.

VESSEL "KINAK"*

For the purpose of securing a more expeditious service in supplying our dredges and boats operating at points remote from Kamsonnet, and also to provide the officials of the Company prompt and speedy service in reaching our works, and for purposes of reconnaissance, it was determined to construct a steam launch, capable of carrying needed supplies, and affording accommodations for a party of ten. The "Kinak" was built at Kamsonnet, completed in September, at once placed in commission, and has been a valuable aid ever since. She is forty feet long, ten feet beam, seven wheel; upright boiler; Worthington engine, etc. Speed, about seven miles per hour. She handles remarkably well on the narrow stretches of the river. On my several trips north, we never experienced any difficulty in navigating this boat from Kamsonnet to the Gulf. She fits all the present requirements in this department.

DRAINAGE CANALS

In this department, the operations of the Company for the year, have been confined to the upper Colomuchukie, between Lake Flit and Lake Oshichukie; on the Klumukuk River, between Oshichukie and Lake Kamsonnet, and in the upper portion of our drainage system, canals have been constructed, extending north from Lake Kae Tokegahkpa to Lake Hahchah.

CONSTRUCTION OF DREDGE NO. 1.

Dredge Boat No. 1, carrying nine thousand in necessary repairs to machinery, etc., has been in active service since January, 1884.

Her work began at Lake Flit, in the Upper Colomuchukie Valley, at a point where navigation ceased, and between which and Lake Oshichukie the accumulation of sand and vegetable deposits, etc., was, in great measure, an insurmountable barrier. No outlet had been caused in her line of operations. From Sugar Berry Hamock to Lake Oshichukie, a distance of about seven miles, the canal was constructed through a body of new-grass lands; she reached Oshichukie Lake December 20th, 1884.

During year 1883, she was occupied in improving the drainage of country west of Sugar Berry Hammock, and returned to vicinity of Lake Fort in winter of that year. During 1884, No. 1 was probably engaged in constructing additional canals west of Lake Fort, and completed a canal along the entire southern border of the lake. Under ordinary conditions, the water at drainage is diverted to this canal, and the lake bed is largely exposed, and could be cultivated, being composed of a deposit of fine soil. About April 20th, the dredge passed Coffin Mill Hammock, and reached Sugar Berry Hammock in June, having accomplished much additional work. At this point she lay up for general repairs—had her rigging and steam portions of Machinery reconstructed, and such other work done as put her in complete order.

During first work in August, the steamer "Beulah Lee," a large Mississippi boat, was towed and fifty feet long, towed the dredge to the mouth of the canal, on west shore of Lake Hitchcock. The "Beulah Lee" had passed through the canal and improved route to Kennesaw City, and was on her return to the Gulf.

On August 13th, Dredge No. 1 commenced the work of doubling the capacity of the canal from Hitchcock westward, and to January 2d, 1885, had excavated for one thousand inches, leaving a finished width of thirty-six feet wide and six and one-half feet deep. This canal is open and free from obstructions, in some places due to excessive action of water flowing with a velocity of two and one-half miles per hour, a deepening has taken place.

I have noticed that, since the lowering of the general water level in this portion of pond drainage territory, the surface water, on the above level flow to the canal and river, has washed out well defined channels. In many places these beds are twenty to thirty feet in width, and sloped to the creek on each side. The water surface of Lake Hitchcock is two feet lower than in January of 1885, and the surface of Lake Oklawaha is eighteen feet lower than at that date.

Captain J. F. Mays, in charge of operations at this place, reports that high land growth is taking possession of the uncovered new grass regions, and the surface of the soil is much lower than on my visit during the fall of 1884.

Total distance excavated by No. 1, during 1884, and 2) 34) (total feet, or 5.1) miles.

This would represent an excavation of 314,400,000 cubic

Appended is a monthly statement, showing movements of No. 1 tin
per 1884.

Operations of District No. 1, for Year 1884.

		Value of Tin.	Quantity Produced Tons.	
January	(No. ending last week) credited to District No. 1, 1884, Unsettled tin in stock, General tin in stock,	145, 145, 25, 25,	145 145 10 10	145
February	(No. ending first of Feb. 1884,)	145, 145, 25, 25,	145 145 10 10	145
March	(General tin in stock, before March 1st, 1884, Unsettled tin in stock, General tin in stock,)	145, 145, 25, 25,	145 145 10 10	145
April	(General tin in stock, before April 1st, 1884, Unsettled tin in stock, General tin in stock, General tin in stock,)	145, 145, 25, 25,	145 145 10 10	145
May	(No. ending first of May, 1884, Unsettled tin in stock, General tin in stock, General tin in stock,)	145, 145, 25, 25,	145 145 10 10	145
June	(General tin in stock, before June 1st, 1884, Unsettled tin in stock, General tin in stock, General tin in stock,)	145, 145, 25, 25,	145 145 10 10	145
July	(Unsettled tin in stock, General tin in stock, General tin in stock,)	145, 145, 25, 25,	145 145 10 10	145

Total amount, 1884.

OPERATIONS OF DREDGE NO. 1, FOR YEAR 1884.—Continued.

		Work of Month	Costing to Owner Per Yard	Total
	<i>August forward.</i>			25,361
August	Worked "Little Lee" canal No. 1, from Sugar Ferry to Lake Shishone- dine; on 14th commenced work of dredging canal from Shishonedine westward.	1st, 2nd, 3rd, 4th.	100 110 125 1,221	1,556
September	Continued work to north, to delay.	5th, 6th, 7th, 8th.	1,245 1,245 1,245 1,245	4,980
October	No serious delay in operations for month. Resumed work now and then at various points.	9th, 10th, 11th, 12th, 13th.	1,262 1,262 1,262 1,262 1,262	6,308
November	Hard and wet weather. Frequent wet so slight, but somewhat work. Slight repairs.	14th, 15th, 16th, 17th.	425 425 425 1,215	3,500
December	Receiving bottom, bucket and line broken for work requiring dock, etc.	18th, 19th, 20th, 21st.	1,251 1,251 1,251 100	4,103 total

OPERATIONS OF DREDGE NO. 2.

Dredge No. 2, has been in service since the early summer of 1877.

At present, the hull and upper works are sound, boiler and engine in good order, and machinery in very fair condition. As in all boats of this character, and operating in this class of work, it is necessary to periodically renew where parts subject to constant wear and friction.

This year, during the year 1884, has been largely engaged in excavating a canal thirty-six feet wide and six feet deep, to connect Lake Tahoe with Lake East Tahoe.

The work is located on a line established through the low bottom lands of Cross Point. The difference of level between these two lakes in 1882,

before any work had been performed, was found to be six feet six inches; the fall being to the southeast. During month of May, 1884, when the water of East Tokegachikpa was at its normal level, and Lake Tokegachikpa at its lowest normal level, a difference of nine feet between the surface of the two lakes was noted. After the rainy season, State Agent J. M. Conroy established the difference in elevation between these two lakes, at seven feet six inches, or about thirty inches fall per mile.

The work of constructing the canal was commenced in January, 1885, and on January 24, 1886, No. 1 was finished from Lake Tokegachikpa first through six hundred feet. The boat completing the canal as she proceeded, and cutting her own passage, accelerated the construction of the dam in order to obtain excessive depth of excavation. The first dam was commenced during latter part of February; dams were also built in May and July.

The dredge passed the Fairy Glen on June 19th. On 19th of same month, in company with First Lieutenant H. A. Dwyer, a general inspection of lake and her operation was made.

Due to the gross nature of the material entering into construction of dams by lock filling, some difficulty was experienced in keeping them intact, and in several instances, wash-outs occurred. These were repaired, however, with but little loss of time, and at small expense. From August 15th to September 24, the dredge crew, as indicated by water level, was employed in constructing the last dam near East Tokegachikpa Lake.

The canal was completed September 1st. From this date until November 1st, the work consisted in the construction of jetties to protect the mouth of the canal, and deepening bed of lake within line of jetties.

During this time, the boat was generally unemployed, and some chain completed. On November 1st, the several dams on line of canal were cut, and water given to the waters of the lake. A number of rocks accumulated to witness this interesting event. The first rush of the water carried away the last vestige of the dams and accumulation in the canal, and the velocity of current established, was sufficient to move on the surface drain, comprising the bed of canal, to a depth of several feet below the line of excavation. For about ten days there was but total difference noted in velocity and force of current. The rapid reduction in the surface level of the lake, however, soon told on the flow in the canal which gradually diminished in force. During the last thirty days, the lake surface fell thirty-six inches.

There was some apprehension that this rapid flow of water would cause an obstruction due to Lake Tokegachikpa. The result, however, was that the lake rose at rate of one half inch per day, for last ten days, after

which the rise was hardly perceptible up to December 14th, when it reached a maximum of nine inches above the level, at time of cutting the dike.

This lake is now steadily falling, and will soon be at its reduced normal level. The territory through which the canal runs is composed of rich lands, the soil being identical with that throughout the district, and well adapted to fertility. Since completion of this work, the surface waters have been lowered, the soil has dried out and could be utilized for cultivation. Where the ditches now worked in four feet of mud and water, the surface of the soil is now dry, and water-level is about 2½ feet within its banks.

Lake Kae Takopetahpa, formerly surrounded by cypress and scrub birches, has developed a beautiful wild apple bush, the bordering lands are cleared and marshes changed to rich arable lands.

No. 1, for the twelve months averaged one thousand and eighteen linear feet of canal, thirty-six feet wide, by six feet deep. Since the end of November she has resumed, cutting and deepening the canal generally, throughout its entire length. Her work would show some improvement, if she were confined with time consumed in waiting an opportunity to cut the dike.

During the year, No. 2 has excavated twelve thousand one hundred and thirty-two feet of canal, six feet by thirty-six feet, and sixteen thousand seven hundred and seventy-five feet of canal, ten feet by thirty-six feet, making a total excavation of one hundred and thirteen thousand nine hundred and fifty-seven cubic yards.

OPERATIONS ON LAKE NO. 1, FOR YEAR 1884.

		Work done in feet	Working in linear feet	Yards
January	Cutting between Lake Takopetahpa and Kae Takopetahpa.	56.	361	
		567.	300	
		296.	270	
	Excavation—dike, mud, beach.	26.	172	
		58.	173	5,112
February	Cutting bank and mud bank, then working up dike; canal banks slightly higher above water level; no normal flow.	56.	36	
		567.	181	
		296.	100	
		26.	80	
		58.	100	181
March	Excavation to work, at dike.	56.	36	
	Excavated by pile stone and which fully was.	567.	101	
		296.	67	
	General working, 172 to 101.	26.	80	
		58.	80	995

Grand total, 5,097

Statement of United No. 1, 1891, from July 1st to December 31st

		1891	1892	
	Receipts	1891	1892	
July	Receipts from the sale of land from the sale of land from the sale of land	100	100	100
Aug	Receipts from the sale of land from the sale of land from the sale of land	100	100	100
Sept	Receipts from the sale of land from the sale of land from the sale of land	100	100	100
Oct	Receipts from the sale of land from the sale of land from the sale of land	100	100	100
Nov	Receipts from the sale of land from the sale of land from the sale of land	100	100	100
Dec	Receipts from the sale of land from the sale of land from the sale of land	100	100	100
Total	Receipts from the sale of land from the sale of land from the sale of land	100	100	100
July	Receipts from the sale of land from the sale of land from the sale of land	100	100	100
Aug	Receipts from the sale of land from the sale of land from the sale of land	100	100	100
Sept	Receipts from the sale of land from the sale of land from the sale of land	100	100	100
Oct	Receipts from the sale of land from the sale of land from the sale of land	100	100	100
Nov	Receipts from the sale of land from the sale of land from the sale of land	100	100	100
Dec	Receipts from the sale of land from the sale of land from the sale of land	100	100	100
Total	Receipts from the sale of land from the sale of land from the sale of land	100	100	100

UNIVERSITY OF DESERT No. 3.

Dredge No. 3 is the lightest, and, in her appointments, the most complete boat in the service of the Company.

On August 1st, 1884, she was placed in service at Southport, at the south end of Lake Umbagog, in the work of enlarging and deepening the canal leading to Lake Cypress. The original canal had been excavated thirty-six feet wide, and six feet deep. No. 3 is engaged in removing from the east side of the canal, an additional section, thirty feet wide and two feet deep, besides deepening a portion of the bed of the original canal.

Her work on the lower and mid bed of Little River, at the south of canal, was somewhat retarded by the presence of numerous rotten logs, etc. Cypress trees, on the line of excavation, two and three feet in diameter, imbedded eight feet below the surface, caused frequent delays and impeded with action of current and bed rocks.

Her machinery worked satisfactorily, and remarkably smooth, and, is well adapted to work of wood, her record of efficiency was very good.

She handled fully twenty-five per cent. of sand through her pumps, leaving a clear channel and level bed in the canal.

Due to an accident, arising from a defective connecting rod, which developed after the boat had been in service about one month, the dredge, on September 15th, was taken to Eastport for repairs.

A close inspection disclosed a flaw in one of the main cylinders, which was first apparent when the work was first up, or on the trial run, prior to commencing the work. It was found a new cylinder would be required, this, Washington & Co. agreed to furnish free of charge, excepting transportation. After careful fitting, however, the engine, on September 18th, was again placed in service, and has run smoothly since.

By October 1st, she had completed the deepening of lower, etc., and began widening of canal proper; as she progressed in this work, a thin stratum of lime rock, underlying the rock and sand, was encountered at a depth of about seven feet below the surface of the water, or ten feet below the surface of the soil; the drainage effected by the original canal, having already developed banks three feet high. The presence of this rocky stratum prevented rapid progress, and added materially to cost of excavation. At points it would dip below the bed of completed canal, and again was found nearer the surface, and less tenacious in its character. It sand and rock, the pump mostly handled from twenty-five per cent. to forty per cent. of solid material. While in work, and the solid regions noted, the engine would not break down and deliver more than five per cent. or ten per cent. of capacity of pump. After several experiments to improve

the efficiency of the cutter in use, it was found that the cutting blades, revolving in a horizontal plane, could not be forced into the face of the excavation, without damage to the suction pipe or rock feed gear, etc.

It was then decided to construct an excavator, the cutting blades of which would have a vertical action. The boat was withdrawn from service during November, for purpose of making the alterations decided upon.

The construction of an economical and effective excavating apparatus will render this one of the most satisfactory and efficient boats in port service.

Hat bog shows that she was in service about three months; having worked under great disadvantages, only fifty days of actual working time was recorded. During this interval she constructed two thousand four hundred and thirty-five lineal feet of canal.

Total excavation by No. 3, to date, forty-five thousand and ninety-two cubic yards. The operations in detail are furnished in following statement:

OPERATIONS OF DREDGE NO. 3, FOR YEAR 1874.

		Work of Month.	Days in Month Free.	Total.
August	No. 3 went into service during month; of August. Operations largely experimental; unsuccessful results; sand and mud.	1st, 2nd, 3rd, 4th.	000 001 001 001	003
September	Boiler becoming bad of engine; ex- hausted engine room, etc.; returned to Kinsman for repairs; accident to rock gear.	1st, 2nd, 3rd, 4th.	00 00 000 000	000
October	Cutting off point at cut near bridge and high water barrier with success; in canal properly; some sand and mud in suction pipe.	1st, 2nd, 3rd, 4th, 5th.	001 000 002 001 00	004
November	Trouble with cutter blades; got re- moving gear in cutter shaft; sand mud and clay in excavation; leak in suction pipe.	1st, 2nd, 3rd, 4th.	00 00 000 000	000
December	Successfully in bed of excavation; re- turned to Kinsman to change form of cutter blades and other modifica- tions.	1st, 2nd, 3rd, 4th.	000 000 00 000	000
	Total working.			007

OPERATIONS OF DREDGE NO. 4.

From January 1st, 1884, to July 4th, this boat was engaged in improving the natural channel connecting Lake Cypress and Hartsdale, locally known as the Cow Path; during this time she cut two thousand one hundred and sixty-two linear feet of canal, forty feet wide and four feet deep.

From February 4th to 14th, she was laid up in Sandy Creek, at the Lake Cypress. On February 14th, No. 4 was engaged in extending the pier at mouth of canal, at footlock, and continued there until April 15th. At this time the boat was without steam power, and only supplied with a crab, tackle and shore poles for hauling logs, etc. The excavation was performed principally by manual labor, and proved both efficient and economical. Her labor on the Cow Path rendered it possible for the large Mississippi steamer, "Bertha Lee," to ascend to Kinsman City. During the latter part of April, the boat was taken to Kinsman City, where she was, in great measure, rebuilt; a second miter, for accommodation of crane was added, and steam hoisting engine, boilers and other appliances put in.

This work was completed May 27th, and she started south as usual, and engaged in some important work in the canal to Lake Cypress, arriving there about July 1st.

Prior to this a new counter-shaft, pistons and rods wheels had been added, also, larger and stronger winding drums. In this work, she improved a channel two thousand three hundred and forty-two linear feet.

Since July 1st, to date, No. 4 has been steadily at work on the river south of Lake Kinsman. In her improved condition, she works with remarkable facility in straightening and improving the tortuous course of the river.

Since July 1st, not exceeding one hundred yards in length, shorten the course of the river from one-half to one mile. One cut, twelve hundred feet in length, avoids a run of three miles, and avoids five very sharp bends. The cut in which she is engaged at present, will be two thousand feet long, and avoid more than five miles of exceedingly tortuous river track. Besides, she has removed many trees, stags, etc.

These improved channels average fifty feet wide, and from two to six feet deep.

The effect on the drainage of Lake Kinsman, by this shortening of the river, is quite evident.

The channel constructed on the lower river measures six thousand seven hundred and eighty-eight linear feet. The material excavated amounts to eighty-three thousand five hundred cubic yards.

Observations on Disease No. 4, the Year 1874.

		Days of Fever	Days of Fever or Pain	Days
Jan.	Spending in early fever and pain both, towards close of year and March, very good work.	16 16 16 16	16 16 16 16	1874
Feb.	Travelling mostly in winter, but up and up a great number, March most, before of month in winter.	16 16 16 16	16 16 16 16	1874
March	Spending mostly in winter, but up and up a great number, March most, before of month in winter.	16 16 16 16	16 16 16 16	1874
April	Spending mostly in winter, but up and up a great number, March most, before of month in winter.	16 16 16 16	16 16 16 16	1874
May	Spending mostly in winter, but up and up a great number, March most, before of month in winter.	16 16 16 16	16 16 16 16	1874
June	Spending mostly in winter, but up and up a great number, March most, before of month in winter.	16 16 16 16	16 16 16 16	1874
July	Spending mostly in winter, but up and up a great number, March most, before of month in winter.	16 16 16 16	16 16 16 16	1874
Aug.	Spending mostly in winter, but up and up a great number, March most, before of month in winter.	16 16 16 16	16 16 16 16	1874
Sept.	Spending mostly in winter, but up and up a great number, March most, before of month in winter.	16 16 16 16	16 16 16 16	1874
Oct.	Spending mostly in winter, but up and up a great number, March most, before of month in winter.	16 16 16 16	16 16 16 16	1874
Nov.	Spending mostly in winter, but up and up a great number, March most, before of month in winter.	16 16 16 16	16 16 16 16	1874
Dec.	Spending mostly in winter, but up and up a great number, March most, before of month in winter.	16 16 16 16	16 16 16 16	1874
Grand total				1874

OPERATIONS OF DREDGE NO. 2, FOR YEAR 1894.—Continued.

		Work at mouth	Amount of dredge taken	Total
<i>Dredge removed.</i>				1,791
September's	Removing mounds and bars: completed and No. 1.	1st.	900	
		2nd.	100	
		3rd.	100	
		4th.	121	1171
October.	Up off second bar: Removal mounds, etc.: Completed near Nov. 4, 5, 6.	1st.	100	
		2nd.	143	
		3rd.	121	
		4th.	100	464
November's	Completed sand which was off bar bars and channels near bar and mouth mounds.	1st.	100	
		2nd.	100	
		3rd.	100	
		4th.	1,691	1,891
December.	December 1st, finished on off, and stopped down to College Blk.; removed mounds (bars) finished on and continued mounds.	1st.	100	
		2nd.	70	
		3rd.	100	
		4th.	100	370
Grand total.				3,656

STEAM TUGS.

The steamboat "Okechabee," has been constantly employed during the year, and, with exception of removal of main shaft, has required but little repair. She has been employed in conveying supplies to dredge boats, and in making almost daily trips to the scene of operations with parties desiring to inspect the reclaimed lands, and the engine plantation established at Southport, on soil which was, until recently, permanently covered with three feet of water.

The steam launch "Konahe," has been steadily in service since her completion; she is a most valuable aid as a quick messenger and supply boat, and has been repeatedly utilized by officers of the Company in surveying and reconnaissance. She handles remarkably well in the narrow windings of the river, and is adapted to river water service. She meets the requirements of the Company in the southern portion of the drainage system, and can be utilized for rapid runs to Lake Okechabee and the Calumet and Chicago River.

GENERAL SUMMARY.

The extensive work done during the drainage season, during the summer and autumn of 1884, has been a severe test of the efficiency of your operations in detail.

The benefit of the work performed west of Lake Kinnear, on the line of Tiger Creek, which intercepts Lakes Tiger, Rosalie and Walk-in-Water, has been very marked.

In this work sixty-five thousand four hundred linear feet of channel was improved and enlarged to a width of forty feet, and depth of ten feet. Eight thousand two hundred and twenty-one snags were removed, and one thousand three hundred and thirty-five trees cut down, besides two hundred and thirty-six becks in creek were straightened.

Three several lakes have been maintained at a reduced level, and at no time has their surface risen more than two inches of the normal summer level.

Lake Fort Tibopokalgis has fallen, since the opening of canal, in November, three feet and ten inches, a remarkable reduction.

Lake Tibopokalgis, covering an area of twenty-six square miles, drains an extensive watershed; it has also received the waters from Lake East Tibopokalgis, covering an area of twenty-four square miles. A rise of only nine inches occurred from the rapid discharge from East Lake, which ceased after the first fifteen days. Under these adverse circumstances, the highest level reached by the waters of Lake Tibopokalgis, was two feet eight inches lower than the plane of reference which established the normal level of this lake when we began operations.

The several lakes south of Tibopokalgis have been maintained at a lower level than normal, and the great Lake Omooshaw, is eighteen inches lower than one year ago, and Lake Haskapah is two feet lower.

The low-water level of the stream, has had the effect of rapidly draining the territory adjacent, and, as a consequence, new lateral water-courses have been formed, which sufficiently aided in carry-off surface water.

The improvement of the Columbian River at Fort Thompson, consisting in the removal of such obstructions to navigation and drainage, has benefited that country very much.

Total excavation by the several dredge boats for the year 1884, as shown by weekly reports, aggregate as follows:—

Dredge No. 1.	114,485 cubic yards.
" " 2.	119,817 " "
" " 3.	47,490 " "
" " 4.	82,180 " "
Total	463,972 cubic yards.

RECOMMENDATIONS.

1st. Supplemental to the recommendations heretofore submitted, and in order to rapidly prosecute the work of reclamation, it would be advisable to still further add to the efficiency of your service, by the construction of one or more design boats to be used on work along the Atlantic and Gulf Coast.

There are many available points along these margins where canals of sixty feet wide and an half mile in length would penetrate through the natural sand ridges of the coast, to the impounded waters of the Everglades, and reclaim large tracts of rich lands, which could be profitably even be plying in the commercial trade.

These lands are all elevated above tidal overflow.

2d. The construction of a large canal, leading from south shore of Lake Okechobee to the lower Everglade region, in vicinity of Bowlegs Landing, and the addition of a supplementary canal from Lake Hialeah to connect therewith. This would insure a rapid reduction in water level of Lake Okechobee.

3d. Additional work should be done in removing the rocky ridge outcropping on the Caloosahatchee River, at Fort Thompson, which causes a obstruction in natural water course at that point. The work already performed there has been most efficient in causing to carry off storm waters. But much benefit would result from an additional enlargement of the river channel at that point.

4th. The large rafts of oak and palmetto trees forming obstructions to flow of water and navigation, should be removed from the Caloosahatchee River, between Fort Thompson and Fort DeLeon, and the floating rafts hindered the banks of the river embank. This would prevent the waters gorging after every rainy period, and would produce sufficient current to efficiently wash out sand bars, etc., which have accumulated in vicinity of these obstructions.

Government aid should be had in the prosecution of this work.

5th. It will be advisable to divert the waters of the Collier's Creek slough, which enters the Caloosahatchee at Fort Thompson, by constructing a low levee at that point, and by an artificial channel directing this flow into the river further to the westward.

6th. Great benefit has already been done from the straightening of the Kissimmee River, south of Lake Kissimmee. It would be advisable to still

rather add to the efficiency of this department by placing another dredge boat of larger capacity in that service.

24. The construction of a canal direct from Lake Cypress to Lake Calumet is recommended, and should be commenced as soon as land connecting Lake Cypress with Lake Hawthorne is completed.

25. It would be advisable, as early as possible, to connect the main river and canal system in the northern portion of the drainage district by lateral canals, through which a more rapid discharge of storm water will be effected. And as the portion of your territory is receiving attention from settlers and capitalists, and is that part of the drainage area in which your acquired lands are located, it is advisable to perfect the work there in all its details.

The above are the most important lines of improvements which the operations and observations extending over the past year, have shown to be advisable at present.

LAND ACQUISITION.

Your operations have long since resulted in the reclamation of large areas, which at present are regarded by experts as embracing lands more desirable for cultivation and settlement. This has been effected by the reduction of the water level of the upper basin of the drainage area, enlargement of natural water ways, opening of several drains long closed by sand bars and other obstructions, construction of drainage canals, the improvement of the influence of the Kankakee River, and opening other channels and canals in the lower system of drainage, connecting Lake Okauchee with the Gulf of Mexico; thus effecting a reduction of several feet in the water level of Lake Okauchee, and the great natural reservoir at the head of the Calumet and Lake Kankakee, and affording an easy line of water communication from the central portion of the State to the Gulf and Ocean.

Mineralogical specimens of large capacity have, during the past year, crossed the Gulf and ascended by improved water ways to Kankakee City, making a journey of three hundred and sixty miles of inland navigation, which, prior to the improvements made by the drainage Company, was doubtfully impossible.

Your Company acquires gradually the land in the wild sections throughout its territory, leaving the very sections for the railroad companies, which lands are equally beautiful and raised in market value by our operations. During the years 1873 and 1874 the three agents, appointed under the provisions of your contract, visited the lands reclaimed, and, under their report, grants have been made by the State to the Company of such land adjudged improved and available for cultivation.

ASSETS.

The Assets of the Company consist in the value of their working plant, permanent improvements, lands already acquired from the State by their operations, and the value of the franchise under which your scheme of drainage is conducted.

Under the first heading we have—

VALUE OF DESIGN RIGHTS, ETC.

Designs Nos. 1,	\$11,000
" " 2,	\$1,000
" " 3,	50,000
" " 4,	1,000
Blueprint "Overclothes,"	1,000
" " "Roads,"	1,000
" " "Everglades,"	1,500
Engineer's shop, ship yard, docks, houses, etc.,	\$1,500
Total,	\$68,000

LANDS ACQUIRED.

Lands awarded to the Company under their contract with the State, and for which drafts have been received, amount to *one million one hundred and fifty-five thousand four hundred and thirty-two acres*. This represents a tract of land one mile wide and over eighteen hundred miles long. The general location of this land are noted later.

There still remains about seven million acres within the drainage territory, from which awards will be made to your Company as the work of reclamation progresses.

Your contract with the State is valid in every particular, and cannot be interfered with; nor is there any possibility of other parties participating in the advantages arising from other schemes of same nature within your territory.

The Company has fully complied with the spirit and letter of the contract, and, as an evidence of good faith on part of the Company, I would call your attention to the clause requiring the Company to perform a service equivalent to the labor of one hundred men per day. It is evident that the cost of the design team employed would exceed this service by several hundred per cent., and the introduction of steam excavating appliances of more improved construction, is steadily adding to the efficiency of the department.

ELEVATIONS OF LAKES, ETC.

The levels taken on any of the Calumet-Sabie and Kankakee Rivers, and Lakes adjoining, represent the most depressed level of the adjacent water shed.

In order to demonstrate that the land in the drainage district is well elevated above the Ocean and Gulf, and susceptible of drainage, I append some names of elevations above tide level:—

	Mean above tide
Lake Conway,	106.00 feet.
Lake East Tahoepekaliga, near Kankakee City,	70.50 "
Lake Tahoepekaliga,	84.59 "
Lake Isabel,	71.08 "
Lake Alligator,	71.48 "
Lake Hightland,	60.23 "
Lake Kankakee,	59.06 "
Lake Tiger,	56.38 "
Lake Walk to the Water,	67.92 "
Lake Lewis,	91.50 "
Lake Little Tiger,	95.64 "
Lake Crooked,	131.08 "
Lake Buffum,	138.36 "
Lake Evelyn,	74.13 "
Everglades at Lake Worth,	66.70 "
Everglades at Miami River,	1.5 "

MAP AND PROFILE.

Accompanying the report is a general map, showing the boundary of the drainage territory. The townships in which lands have been acquired, are appropriately designated.

The profiles are self-explanatory, and can readily be referred to general maps for more specific location.

TERMINUS OF THE DRAINAGE COMMISSION.

Northward from the extreme southern portion of the peninsula of Florida, the territory covered by your franchise extends over two hundred miles, and spreads from the mouth of the Calumet-Sabie, on the Gulf of Mexico, to its western boundary, a distance of one hundred and ten miles.

Through this territory, covering an area of about two million acres, are the only really tropical water avenues in the United States. The Kankakee River, reaching northward from the extreme northern portion of the drainage system, empties into Lake Okechobee; from its source to its

much, it is distinctive in soil, shores, waters and vegetation, heading in the large and beautiful Lake Tolupekalipig; it intercepts, in its course, a chain of smaller lakes of pure, clear water, which reflect its valley from the mountainous character of long rivers. The soil bordering the river is wonderful in quality, and is capable of producing, in season, the most luscious crops. Oak and palmetto hammocks, and forests of red bay and other tropical woods, are found along the shore lines, at intervals. The rich bottom-lands and prairies, extending to the high point lands on east and west, characterize this section. These prairie lands are numerous swales, clothed with luxuriant sods, interspersed with clumps of oak trees and palmettos of from two to two acres each.

The Calumettribe, which empties into the Gulf of Mexico in lat. 20° 30', is a large and beautiful river, in season, extending inland a distance of forty miles long in season, or over a mile in width. It then narrows to a deep channel, about fifty yards wide, with precipitous banks, and continues to Fort Thompson, where it intercepts Lake Erie. From that point to Lake Okuchidaw, no navigation is allowed until provided by the canal of your Company. The river is navigable by vessels drawing about six feet, and the bordering lands support a growth of low oak, sufficient to supply the Navy of the United States for a quarter of a century. The scenery on the river is mostly tropical. Great forests of oak trees, magnolias, palmettos and palms, all covered and interlocked with a mass work of immense vines, brilliant with vegetation, leaves of all colors, flowers of bright hues, and branches laden with delicious smelling blossoms, add to the natural charm of the scenery; all a potential growth, brightening the landscape at a time when the Northern States are wrapped in snow and ice. Besides these rivers are numerous lakes, of all shapes and sizes, scattered throughout the drainage region, from ponds of a few acres in extent to spacious lakes of thirty to sixty miles in area. Lake Okuchidaw covers an area of one thousand square miles, and is the largest lake within the bounds of any State in the Union.

These lakes have palmetto and pine clad shores, and the pleasant stimulus of rivers, alluvial meadows and open prairies for the prevailing breezes of summer. They are frequently overlooked by land trails or sailing boats; their waters pure, and brimming with fish.

The soil of this territory has been heretofore described, and its capabilities for producing paying crops well ascertained.

DESCRIPTION OF BOTTOM LANDS.

From the look-out on your dredge boats, the characteristics of the most fertile bottom-lands, before and after inclosure under the agency of recla-

surface, is readily noted. The dredge boat, plunging her way through what has been called here an impassable mud bank, actually operates on the face of the artificial sea, or depressed portion of the surface. When working on the Vinn Plovra canal, the boat was encountering an impassable grade, due to which the soil in front readily responded to the influence of the canal construction. An inspection in the direction of Lake Tselispekalga, revealed a vast area of such bottom land already covered with water, which, surging through the luxuriant growth of sea grass and aquatic plants, flowed in a steady current into the head of the canal, and even the sides of that portion of the canal had completely. On the other hand, on examination of the country to the east, and through which the canal passes, presents an entirely different aspect. The water has disappeared from the surface, aquatic plants, overtopped by the surface vegetation, are leoparded and dead, and the sea grass, water lily, etc., are giving place to maritime grasses and wild millet, affording a most luxuriant grazing field for stock.

In trace of the dredge, the sight of life appears, interrupting a few marsh birds. In the rear are banks of earth facing the working surface, and bordering at the very bottom of your canal, upon a spontaneous and highly luxuriant vegetation. In advance of the boat, the soil is yielding and lumpy, in the opposite direction, dry and well facing is alluvial. The soil of the bottom-land is homogeneous, and does not partake of the character of marsh land in the North, in which boulders and deep holes adjacent are the normal conditions. The soil is a heavy rich loam, largely composed of loess, it deeply varying from three to ten feet, and upwards. Beneath the surface soil is a bed of rich well sorted, which, in a measure, has been incorporated into the overlying stratum. These heavy particles, in their slow chemical change, take up and neutralize the acidity due to decaying plant life. The surface of all level of this character is uniform, with sufficient grade to afford ready drainage. The value of this land for the purposes of immediate cultivation, has been conclusively demonstrated during the past season.

At Seeligen, at foot of Lake Tselispekalga, a tract of land adjacent the canal, and which had been previously covered with dense beds of water, is now under a high state of cultivation for sugar cane and other crops. Immediately after the land was cleared and prepared for tillage, a large field of sugar cane was planted. Upon the same ground a crop of corn was raised, which matured before the sugar cane had fairly commenced, and commenced to grow. A yield of fully eighty bushels of corn per acre was harvested from the first planting. On soil of same character and in same location, vegetation were grown to a high state of perfection, and extractions of large size and unsurpassed quality were produced.

The accompanying certificate of the Haverhill Jan. M. Fryer and Clay Johnson, Esq., an expert Louisiana sugar planter, fully attests as to the value of these lands for sugar cane and crops of an exhaustive character.

The lands on which this cane was grown, and on which there is now a ten fold of cane in full bloom, as "land," were, previous to the operations of the Chesapeake Drainage Company, permanently covered with from two to twenty feet of water. The canal draining these lands was completed February 10th, 1871; on January 26, 1874, active operations were begun in clearing the reclaimed lands; plowing immediately followed the clearing land. Between February 24th and 26th, 1874, the cane was planted—one year subsequent to completing the canal. For breaking the land, a team of two ordinary mules was equal, in cultivating, one man. The season has been unfortunately very dry spring and a very wet fall; the yield is, however, enormous, the stand perfect, and the average length of cane 55.44 centimeters—equal feet, many stalks exceeding fifteen feet of natural cane. Average diameter of cane, 1 1/2 inches.

No estimate is yet made on value of cane.

The cost, per acre, to clear the land, fence and ditch it, buildings, and other, planting and cultivation, has been less than \$1000 per acre, including all expenses to date.

Louisiana Cane, Turkey, January 26th, 1874

As the undersigned, seeing that the following statement of the growth of the best of sugar cane, made January 26th, 1874, is correct, the fact being made known to them, and ascertained.

Cane on from 1/2 acre of land of the Chesapeake sugar cane, and others, as shown, has been sent.

Number of stalks of cane,	100
Gallons of juice expressed,	1000
Gallons of syrup (18 lbs)	11
Average yield of juice per stalk,	10.00
Maximum yield of single stalk,	12.00

The stock returned to average with best of cane.

Mules per acre,	10,000
Gallons of juice per acre,	1,000
Gallons of syrup (18 lbs) per acre,	100

Since growth is correct, price, as now selling, at Chesapeake Cane, @ 40 cents per gallon, follows.

The apparatus on which the ore was piled, is everywhere not unequalled, the mill being a very small one—often forty tons, at least 15 per cent. increasing in the "high season," after "high-water" being so saturated with juice, that sometimes could be swung out of it with the hand. No intention of crushing was anticipated, the piling being simply composed of raw juice, with no addition of any kind. With grapes appearing, the mill would be left at per cent. greater.

CLAY J. JOHNSON,
JOS. M. BRYAN.

NATURAL SURFACE.

While the surface is generally level, it is not of that flat and monotonous nature usually described as characteristic of South Florida.

Within the drainage district are vast tracts of undulating country, presenting attractive scenery and a rich soil, supporting a luxuriant vegetation, and affording to the agriculturist many important advantages in its capability for producing the varied fruits and crops of the country.

Low Ground.

Besides, there are extensive rich prairies, or prairie adapted to cattle and sheep grazing, which has proven a most profitable industry. Many of the rich cattle men of this section commenced business a few years ago on a very limited scale. The richness of the climate; plenitude of water; rich, nutritious grasses on the low prairie; timbered country, affording wood and charcoal for the stock; no want of food for winter use; good foreign markets, and an increasing home consumption, opens an attractive and profitable business to men of large means.

There is no State in the Union in which the climate is so favorable to stock grazing, as Florida. Several hundred thousand head of horses, cattle, sheep and swine, are at present ranging through the drainage district; the perennial vegetation affording an abundance of food during the entire year for these large and increasing herds.

Timber.

Adjoining the coasts, there are extensive and rich woodswamp lands, which have been its forest. The live oak, hickory, black, sweet bay, palmetto, mangrove and mudica, constitute the principal ones. Large tracts of cypress, suitable to points of shipment, are scattered over the country. The level and rolling lands are generally covered with growths of yellow and pink pine, which attract fire and iron.

Of all the States, Florida has the largest area of original growth of gum timber, and the territory under cultivation is covered by timber in

sufficient quantity for all home requirements, and would afford a large supply for export to various departments.

FRUIT-TREES.

In range and variety of its products, it surpasses every other section of the United States, of equal size; side by side with the staple crops and vegetables, may be grown every fruit, flower, shrub, plant or product, that grows in any tropical country of the world. It is the region of the orange, lime, lemon, pineapple, banana, coconut, guava, sugar apple, luscious fruit, almond, fig olive, etc., etc.

It is not the province of this paper to enumerate in detail the long list of productions which may be grown within past boundaries with more certainty and less care than elsewhere, with the added advantage in many cases of requiring, with a similar or more other crop, the same year. Within this territory most of the products of both the temperate and tropical climes may be found growing side by side, and the land is always capable of producing paying crops in one form or another. Citrus, cane, rice, tobacco, flax, and all field crops pay handsomely. The long orange in its island home, is raised mostly upon soil of but little fertility, the yield averaging about two hundred pounds per acre; the species of orange is only raised on the sea islands bordering South Carolina, Georgia, and in Florida; the best here raising over one half the total crop. Fibrous plants, which stand so largely into the middle of the century, continue in production to the southern portion of the State. Iron, coal, hemp, and cotton, are successfully grown. Here we produce canebrake and sweetroot as a stock for starch, lignum and ginseng, and the southern peninsula is the only territory in the United States where these strictly tropical plants can be grown. Six hundred bushels of canebrake per acre is no excessive yield from average good land. There is no month in the year in which fresh vegetables of all kinds may not be produced, either for home consumption or northern markets. The soil is so easily cultivated, that most garden work can be performed with one third the labor required North. No fruit shrub or herb, or seeds so numerous. The right growths all species of cultivation means large and tender vegetation, early and lasting fruit. A single stream will afford strawberries from the setting out; ripe figs from two year old cuttings; guavas the second year; peaches the second and third year; oranges from the first to four years. At little cost and attention, one can enjoy fresh-plucked fruit the whole year.

CLIMATE, MARINE, ETC.

This is the region for purely tropical fruits, and for the benefits of a summer climate during the winter months.

From personal experience of all seasons, I am satisfied the climate is desirable throughout the year; the temperature at no time ranging so high as in the Middle States during oppressive summer weather. At Kilauea City, during the past year, the thermometer never registered higher than 88° at six o'clock, noon, and at Paha Baya, on the Gulf Coast, the U. S. Signal Service, in a period of twelve years, recorded the highest exposure of the thermometer at 91°.

The institutions of this section of the State, is unsurpassed by any portion of the Union.

There was never known a case of scurvy or beriberi; pneumonia is unknown; no erysipelas and small-pox. Yellow fever has never been known to exist there; and whenever introduced at any point in the trade, this disease was brought there by infected vessels; in no case was it of local or spontaneous origin.

One of the best attested facts as to the continued healthfulness of this portion of the State, is shown by the reports respecting the condition of the laws employed by Chamberlain Druggists Company, which has been operating on the line of the rock bottom lands since the year 1876. Our employees come from almost every State in the Union and foreign countries. No colored labor is employed on our work.

During this interval and after a continuous service, without interruption, during the warm months, there has never been a death from any cause whatever; and a physician of a professional capacity has never visited our work. The health of our men, not only, but of the women throughout the district, is unsurpassed at this time.

With water transportation blank for a distance of three hundred and sixty miles already provided, and the steamships now regularly plying to the Gulf coast; and around national transportation into this region; and other lines of communication regularly opened, this will be found to be one of the most delightful portions of America—healthy and agreeable, and capable of the highest state of agricultural development; while the government and products of its salt water coast is jacking, fish, oysters and shells; of its charming lakes and rivers for boating and angling; of its fields, groves and gardens, growing a new country to the operations, and a profitable and convenient source for the successful propagation of tropical and semi-tropical fruits, and jacking products of the soil. These features

in which game lands are located, with forests to be reclaimed, at all seasons, an attractive feature, and the best and most delicious of all foods that human nature craves.

Appended is an extract from the annual message of the Hon. W. D. Bloxham, Governor of the State of Florida; also, an expression from General U. S. Grant, which are commanding and imperative in this connection.

Yours, very respectfully,

JAMES M. KRYAMER,
Chief Eng. and Genl. Supt.

EXTRACT FROM MESSAGE OF W. D. BLOXHAM, GOVERNOR AND
AGRICULTURIST OF STATE OF FLORIDA.

FORWARDED JANUARY 22ND, 1892.

"The Atlantic and Gulf Coast Canal and Inter-oceanic Land Company, under their contract with the State, for the reclamation of lands in the southern portion of the Peninsula, since the year 1886, have steadily prosecuted the work of constructing drainage canals, the improvement of the natural stream-gorges within their possession, and have added efficient mechanical appliances by which the completion of the great work contemplated under their franchise with the State will be materially hastened.

"A brief summary of the operations of this Company, shows a completed canal for drainage and irrigation, connecting the head waters of the Caloosahatchee and Okechobee, communicating to its course, Lake Fla. and Hutchinson, the latter being at least some forty miles from either in distance, before practically achieved. This canal penetrates a portion of the State between Immokalee, and Fort Myers, a large territory.

"The connecting bridge of Immokalee through which the Caloosahatchee River at Fort Thompson issues its way, has been skillfully improved to provide a channel to which and thence communication with present branches of irrigation. The Company is engaged in deepening the Kissimmee River, much efficient work having already been accomplished. In some instances, one of two thousand of a mile, without the drainage by art other channel above their action.

"Dyers Creek, connecting Lake Kissimmee with Lake Tigua, Kissimmee and Wells to the Water on the west, has been deepened, deepened, and improved, by removal of obstructions, &c.

"The water shed of the upper system of drainage has been permanently enlarged, by the recent completion of a canal connecting Lake Tohopeulippe with the drainage system south.

"This canal is supplementary to the large one long since completed to Lake Cypress, by which the upper level of Lake Tohopeulippe, receiving an area of twenty-six square miles, was increased more than

¹¹ The authors of the numerous libraries of Augustan manuscripts and inscriptions, which have been lost but of which the traces are sometimes found in later literary collections, may find it surprising that the most important portion of the library is actually preserved in the form of a parchment record of the same.

During the past month or so, built up by the State Highway Department, is the new highway, the most recently completed two-lane, 25-mile improvement for travel between the National Park and the Longview, Wyoming, State Park, at the mouth of the Colorado River, on the Gulf with Kalamazoo (the point where it finally reaches the Gulf) through the State. The Company is operating that about 20 miles, mostly on the 1910-1911 highway, which was the first one to be built, and then the 1912-1913 highway, which was the second one to be built. They have also completed a number of other bridges, but not other highway improvements, in the construction of the road to be built.

"These two sides of credit and their improvement have been made, leading to a revival of economic liberalism in Europe and America. The introduction of paper note work has improved the circulation of the monetary system. The expansion of the monetary system has created confidence and credit in the financial system in Europe. The introduction of paper currency of money, including note of the state, is the most important step taken in the United States, with the same results, compared to the system of gold and silver coins, is the beginning of an era of prosperity, wealth, and economic development in the United States."

ORIGINAL GRANTS ISSUED BY BUREAU AFTER A FULL YEAR
END YEAR

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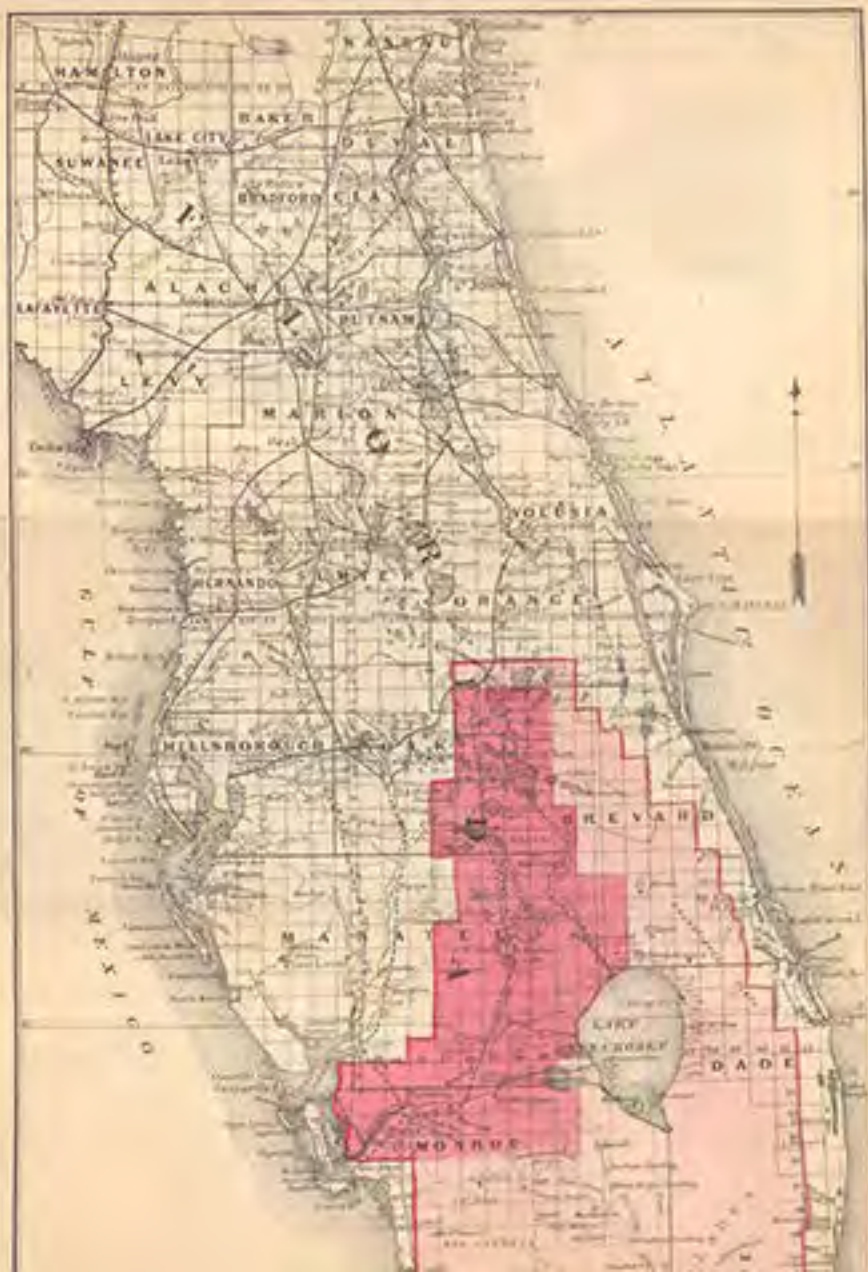
I am very glad about all these things you have done. I am very glad to hear that you are doing so well. I am very glad to hear that you are doing so well. I am very glad to hear that you are doing so well.

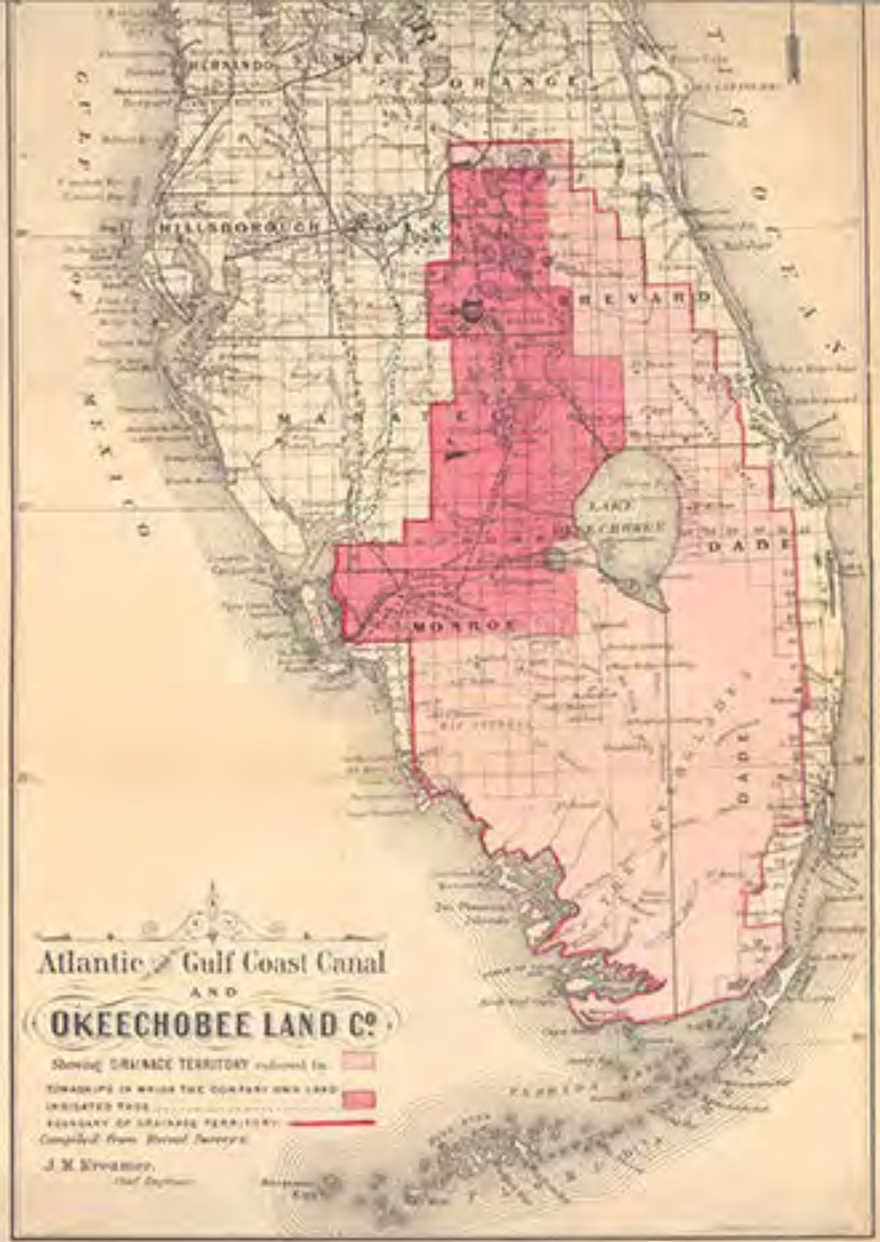
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Keywords: child sexual abuse; disclosure; legal system









This is a detailed historical map of the southeastern United States, specifically focusing on the state of Florida. The map shows the coastline, major cities, and various counties. A large area in the central and eastern parts of the state is highlighted in pink, representing the Okeechobee Land Company territory. This area includes parts of Hillsborough, Manatee, Polk, Brevard, Lake, Monroe, and Dade counties. The Okeechobee Lake is clearly visible within this territory. The map also shows the Atlantic Ocean to the east and the Gulf of Mexico to the west. The title 'Atlantic & Gulf Coast Canal AND OKEECHOBEE LAND CO.' is prominently displayed in the lower left corner, along with a legend and the name of the compiler, J. M. Kremer.

Atlantic & Gulf Coast Canal AND OKEECHOBEE LAND CO.

Showing DRAINAGE TERRITORY enclosed in 
TOWNSHIPS in which the COMPANY owns LAND 
INDICATED THIS 
BOUNDARY OF DRAINAGE TERRITORY 
Compiled from United States

J. M. Kremer,

Chief Engineer

Washington, D.C.



Showing Contour and General Lake Umbagog area.
 Lake shown in black, portion of Crow River in white, and area of Lake Umbagog in green. (See also map of Crow River, page 10.)

Showing Completed Canal from the Little Tonolowake to the north.



Scale of the Map. 1 inch = 1 mile. The map was prepared by the U.S. Coast and Geodetic Survey, and is published by the U.S. Government Printing Office. The map is a reproduction of the original map, and is not a new edition.

